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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/046,323	01/14/2002	Martin A. Cotton	2654-015	2812

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EXAMINER

NORRIS, JEREMY C

ART UNIT	PAPER NUMBER
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2841

DATE MAILED: 08/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/046,323

Applicant(s)

COTTON, MARTIN A.

Examiner

Jeremy C. Norris

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 September 2004.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) 19-21 is/are allowed.
- 6) ☒ Claim(s) 1-18, 22 and 23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim 23 is rejected under 35 U.S.C. 102(e) as being anticipated by US 5,677,515 (Selk).

Selk discloses, referring to figure 1 an inductor comprising: one or more layers of non-conducting material (14, 18) with a pair of trenches (26, 27) formed adjacent one another through the one or more layers of non-conducting material; a conductive tube, wherein the conductive tube comprises: a top conductor layer (20) disposed atop the one or more layers of non-conducting material, between the pair of trenches, a bottom conductor layer (22) disposed beneath the two or more layers of non-conducting material, between the pair of trenches, and opposed side wall conductors (24), electrically connected to the top and bottom conductor layers, wherein the opposed side wall conductors are formed on walls of the pair of trenches; a first end lead formed as an extension of the top conductor layer, and a second end lead formed as an extension of the bottom side conductor [claim 23].

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-6, 9-18, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,677,515 (Selk).

Selk discloses, referring to figure 1, a laminated signal line comprising: two or more layers of non-conducting material (18,14); one or more internal conductors (12), each of the internal conductors being sandwiched between adjacent ones of the two or more layers of non-conducting material; and a conductive shield comprising: a top conductor layer (20) disposed atop the two or more layers of non- conducting material, and opposed side wall conductors (24), electrically connected to the top conductor layer, wherein the opposed side wall conductors are formed on walls of a pair of trenches (26, 27) that are formed through the two or more layers of non-conducting material on opposed sides of the one or more internal conductors. Selk does not specifically disclose two or more conductors [claim 1]. However, such a modification involves only a duplication of parts, obvious to the ordinarily skilled artisan. The motivation for doing so would have been would have been to transmit multiple signals simultaneously. Moreover, it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8.

Additionally, the modified invention of Selk discloses wherein the conductive shield further comprises: a bottom conductor layer (22) disposed beneath the two or more layers of non- conducting material, the bottom conductor layer being electrically connected to the top conductor layer and the opposed side wall conductors [claim 2] wherein the top conductor layer, the opposed side wall conductors, and the bottom conductor layer are unitarily formed so that the conductive shield surrounds the one or more internal conductors [claim 3], wherein the one or more internal conductors and the

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conductive shield are formed substantially of copper (see col. 2, lines 45-68) [claim 4], wherein the pair of trenches are substantially parallel to one another [claim 5] wherein the top conductor layer and the opposed side wall conductors are unitarily formed so that the conductive shield surrounds the one or more internal conductors [claim 6].

Similarly, Selk discloses, a laminated conductive tube comprising: one or more layers of non-conducting material (14, 18); and a shield comprising: a top conductor layer (20) disposed atop the one or more layers of non-conducting material, a bottom conductor layer (22) disposed beneath the two or more layers of non-conducting material, and opposed side wall conductors (24), electrically connected to the top and bottom conductor layers, wherein the opposed side wall conductors are formed on walls of a pair of trenches (26, 27) that are formed adjacent one another through the two or more layers of non-conducting material. Selk does not specifically disclose two or more conductors [claim 8]. However, such a modification involves only a duplication of parts, obvious to the ordinarily skilled artisan. The motivation for doing so would have been would have been to transmit multiple signals simultaneously. Moreover, it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8.

Additionally, the modified invention of Selk discloses, wherein the top conductor layer, the opposed side wall conductors, and the bottom conductor layer are unitarily formed so that the shield surrounds the one or more internal conductors (12) [claim 9],

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wherein the shield is formed substantially of copper (see col. 2, lines 40-68) [claim 10], wherein the pair of trenches are substantially parallel to one another [claim 11].

Similarly, Selk discloses, a printed circuit board comprising one or more laminated signal lines, wherein each of the signal lines comprises: two or more layers of non-conducting material (14, 18); one or more internal conductors (12), each of the internal conductors being sandwiched between adjacent ones of the two or more layers of non-conducting material; and a conductive shield comprising: a top conductor layer (20) disposed atop the two or more layers of non-conducting material, and opposed side wall conductors (24), electrically connected to the top conductor layer; wherein the opposed side wall conductors are formed on walls of a pair of trenches (26, 27) that are formed through the two or more layers of non-conducting material on opposed sides of the one or more internal conductors Selk does not specifically disclose two or more conductors [claim 8]. However, such a modification involves only a duplication of parts, obvious to the ordinarily skilled artisan. The motivation for doing so would have been to transmit multiple signals simultaneously. Moreover, it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8.

Additionally, the modified invention of Selk discloses, wherein the conductive shield further comprises: a bottom conductor layer (22) disposed beneath the two or more layers of non-conducting material, the bottom conductor layer being electrically connected to the top conductor layer and the opposed side wall conductors [claim 13], wherein the top conductor layer, the opposed side wall conductors, and the bottom

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conductor layer are unitarily formed so that the conductive shield surrounds the one or more internal conductors [claim 14], wherein the one or more internal conductors and the conductive shield are formed substantially of copper (see col. 2, lines 40-68) [claim 15], wherein the top conductor layer and the opposed side wall conductors are unitarily formed so that the conductive shield surrounds the one or more internal conductors [claim 16], further comprising: a plated-through hole (80) connected to one end of one of the internal conductors, the plated-through hole being formed through the printed circuit board [claim 18].

Moreover, Selk discloses referring to figure 3a, a method of forming a shielded waveguide in a laminated printed circuit board, the method comprising: forming a bottom shield layer (50) on a non-conductive substrate (48); forming a first non-conductive layer (62) over the bottom shield layer, patterning an internal conductor (44) atop the first non-conductive layer; forming a second non-conductive layer (66) over the patterned internal conductor and the first non-conductive layer; forming a top shield layer (68, 70) atop the second non-conductive layer; forming a pair of trenches (72, 74) through the first and second non-conductive layers on opposed sides of the internal conductor; and disposing conductive material on walls of the trenches, extending from the bottom shield layer to the top shield layer [claim 22].

Furthermore, Selk discloses, referring to figure 1) an inductor comprising: one or more layers of non-conducting material (14, 18) with a pair of trenches (26, 27) formed adjacent one another through the one or more layers of non-conducting material; a conductive tube, wherein the conductive tube comprises: a top conductor

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layer (20) disposed atop the one or more layers of non-conducting material, between the pair of trenches, a bottom conductor layer (22) disposed beneath the two or more layers of non-conducting material, between the pair of trenches, and opposed side wall conductors (24), electrically connected to the top and bottom conductor layers, wherein the opposed side wall conductors are formed on walls of the pair of trenches; a first end lead formed as an extension of the top conductor layer, and a second end lead formed as an extension of the bottom side conductor [claim 23].

Allowable Subject Matter

Claims 19-21 are allowed.

The following is a statement of reasons for the indication of allowable subject matter:

Claim 19 states the limitation "a bottom shield layer, electrically connected to the conductive side wall, buried within the printed circuit board at a level beneath the further buried level". This limitation, in conjunction with the other claimed limitations was neither found to be disclosed in, nor suggested by the prior art.

Response to Arguments

Applicant's arguments with respect to claims 1-18, and 22 have been considered but are moot in view of the new ground(s) of rejection.

Applicant's arguments filed 9-17-03 regarding claim 23 have been fully considered but they are not persuasive. Applicant only alleges that the leads are not shown by Selk. However, the above rejection clearly points out these elements (see figure 1, elements 82).

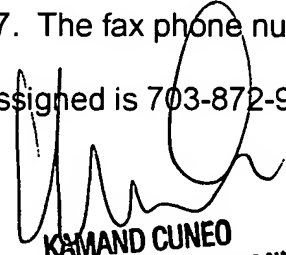
Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeremy C. Norris whose telephone number is 571-272-1932. The examiner can normally be reached on Monday - Friday, 9:30 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamand Cuneo can be reached on 571-272-1957. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.


KAMAND CUNEO
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JCSN